FlyBy Math™ Alignment
Arkansas Mathematics Curriculum Framework

Strand: Number and Operations

Standard 3: Numerical Operations and Estimation
Students shall compute fluently and make reasonable estimates

Student Learning Expectation	***FlyBy Math*™ Activities**
NO.3.6.6 Use proportional reasoning and *ratios* to represent problem situations and determine the reasonableness of solutions with and without appropriate *technology* (Ex. unit *rates*)	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.

Strand: Algebra

Standard 4: Patterns, Relations and Functions
Students shall recognize, describe, and develop patterns, relations and functions

Student Learning Expectation	***FlyBy Math*™ Activities**
A.4.6.1 Solve problems by finding the next term or missing term in a *pattern* or *function* table using real world situations	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.

Standard 6: Algebraic Models
Students shall develop and apply mathematical models to represent and understand quantitative relationships

Student Learning Expectation	***FlyBy Math*™ Activities**
A.6.6.1 Complete, with and without appropriate *technology*, and interpret tables and *line graphs* that represent the relationship between two *variable*s in *quadrant* I Ex. time and distance	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.

Standard 7: Analysis of Change
Students shall analyze change in various contexts

Student Learning Expectation	***FlyBy Math*™ Activities**
A.7.6.1 Identify and compare situations with constant or varying *rates* of change Ex. a student's rate of growth each year is a varying rate, hourly wages is a constant rate	--Compare airspace scenarios for both the same and different starting conditions and the same and different rates.

Strand: Geometry	
Standard 10: Coordinate Geometry **Students shall specify locations and describe spatial relationships using coordinate geometry and other representational systems**	
Student Learning Expectation	***FlyBy Math™* Activities**
G.10.6.1 Use *ordered pairs* to plot points in *Quadrant I*	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes and predict outcomes

Strand: Measurement	
Standard 12: Physical Attributes **Students shall use attributes and tools of measurement to describe and compare mathematical and real-world objects**	
Student Learning Expectation	***FlyBy Math™* Activities**
M.12.6.1 Identify and select appropriate units and tools from both systems to measure Ex. angles with degrees, distance with feet	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
Standard 13: Systems of Measurement **Students shall identify and use units, systems and processes of measurement**	
Student Learning Expectation	***FlyBy Math™* Activities**
M.13.6.1 Solve real world problems involving one *elapsed time*, counting forward and backward (calendar and clock)	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
M.13.6.5 Find the distance between two points on a number line	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
M.13.6.6 Use estimation to check the reasonableness of measurements obtained from use of various instruments (including angle measures)	--Predict outcomes and explain results of mathematical models and experiments.

Strand: Data Analysis and Probability	
Standard 14: Data Representation **Students shall formulate questions that can be addressed with data and collect, organize and display**	
Student Learning Expectation	***FlyBy Math™* Activities**
DAP.14.6.2 Collect data and select appropriate graphical	--Conduct simulation and measurement for several aircraft conflict problems.

representations to display the data including *Venn diagrams*	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
DAP.14.6.3 Construct and interpret graphs, using correct scale, including *line graphs* and *double-bar graphs*	--Represent distance, rate, and time data using line plots, bar graphs, and line graphs. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
Standard 15: Data Analysis **Students shall select and use appropriate statistical methods to analyze data**	
Student Learning Expectation	***FlyBy Math™* Activities**
DAP.15.6.1 Interpret graphs such as *double line graphs* and *circle graphs*	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
Standard 16: Inferences and Predictions **Students shall develop and evaluate inferences and predictions that are based on data**	
Student Learning Expectation	***FlyBy Math™* Activities**
DAP.16.6.1 Use observations about differences in data to make justifiable inferences	--Predict the relative motion of two airplanes on given paths. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.